Non-invasive biomarkers in saliva and hair for the assessment of pig welfare

UAB

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Objectives

Identification of non-invasive biomarkers suitable for assessing porcine well-being and possible practical applications

Stress effects

- Decrease in growth rate
- Increase in fat tissue
- Increase in marbling
- Decrease in meatiness
- Higher chance of DFD and PSE meats

Biomarkers	Sample	Stress	Pros	Cons
Cortisol	Saliva	Acute	Fast results, most researched	Temporal variations
	Hair	Chronic	Long-term insight	External contamination
Oxytocin	Saliva	Acute	Reflects directly welfare	Affected by farrowing
	Hair	Chronic	Long-term insight	Affected by farrowing
Alpha-amylase	Saliva	Acute	Easy to measure	Poor sample preservation

Practical applications

- Routine monitoring of welfare
- Assessment of conditions prior to sacrifice
- Genetic improvement programs
- Support for animal welfare certifications

Conclusions

Cortisol, oxytocin and alpha-amylase in saliva and hair samples are useful for assessing swine welfare and their use could improve pig production